

AD-A272 079



8 April 1993 Final Student Research Report

Can the Marine Corps Support the Marine Component and Commander of the Joint Task Force

Captain B. S. Blankenship, USMC; Captain K. R. Chambers, USMC; Captain D. M. Ross, USA; Captain D. S. Rowe, USMC

Command and Control Systems Course
Communication Officer's School
2085 Morrell Avenue
Quantico, Virginia 22134-5058

Marine Corps University
Marine Corps Combat Development Command
2076 South Street
Quantico, Virginia 22134-5068

Approved for public release;
distribution is unlimited

2
DTIC
ELECTED
NOV 04 1993
S B D

Accession For	
NTIS GRA&I	<input checked="" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Avail and/or	
Dist	Special

Thesis: The United States Marine Corps can support the Marine component and Commander of the Joint Task Force simultaneously with the exception of some equipment which can be resolved through augmentation from the Joint Communication Support Element (JCSE) and other services using Memorandums of Agreement (MOA). This paper examines joint information exchange requirements, communication and security requirements, and equipment shortfalls for continuous operations.

USMC; Command and Control; C2; C3; C4I;
Joint Command and Control; MOA; JCSE; CMS; ICP;
Equipment Interoperability; COMSEC; Procurement

32

Unclassified Unclassified Unclassified

CAN THE MARINE CORPS SUPPORT THE MARINE COMPONENT AND
COMMANDER OF THE JOINT TASK FORCE?

Submitted to
Major T. Learn
and Mrs. Sandra Kirkpatrick
at the Communication Officers School
Quantico, Virginia

Captain B.S. Blankenship, USMC
Captain K.R. Chambers, USMC
Captain D.M. Ross, USA
Captain D.S. Rowe, USMC

April 8, 1993

93-26553

7-1

95 11 1 141

CAN THE MARINE CORPS SUPPORT THE MARINE COMPONENT AND
COMMANDER OF THE JOINT TASK FORCE?

OUTLINE

Thesis statement: The Marine Corps can support the Marine Component and Commander of the Joint Task Force simultaneously with the exception of some equipment which can be resolved through augmentation from the JCSE and other services using Memorandums of Agreement.

- I. Staffs and C3 information exchange requirements
 - A. JCS J-2 functions and requirements
 - B. JCS J-6 functions and requirements
- II. Identifying personnel requirements
 - A. Manning the J-6 with qualified personnel
 - B. The battle roster concept: Is it practicable?
 - C. The FSPG - expanding the communications battalion
- III. Supporting component communication requirements
 - A. JTF communication requirements - JCSE support
 - B. MARFOR communication requirements - MOA support
 - C. Identifying equipment shortfalls
- IV. Acquisition of interoperable communication equipment
 - A. Switching equipment
 - B. Multichannel equipment
 - C. GMF satellite equipment
 - D. Digital technical control equipment
- V. The COMSEC Material System (CMS)
 - A. Managing the Intertheater COMSEC Package (ICP)
 - B. Establishing a Marine COMSEC Management Office
 - C. MCMO in a joint environment
- VI. Data networks in the joint environment
 - A. Integrated data networks in a joint environment
 - B. Security of data networks
- VII. The Marine Corps needs augmentation to support the Marine Component and Commander of the Joint Task Force. This report presents a method that allows the Marine Corps to support both simultaneously with Memorandums of Agreement augmentation until the necessary equipment is procured.

CAN THE MARINE CORPS SUPPORT THE MARINE COMPONENT AND
COMMANDER OF THE JOINT TASK FORCE?

This report presents the Marine Corps with a method for dealing with the issue of supporting the Marine Component and Commander Joint Task Force (COMJTF) simultaneously. There are many issues to be resolved if the Marine Corps is to support JTF and Marine Forces (MARFOR) component. Our focus is on those areas related to command, control, and communications (C3). Our evaluation of the problems involved in a Marine COMJTF indicates that the Marine Corps can support the Marine Component and the COMJTF simultaneously except for some equipment resources which can be acquired through augmentation from the Joint Communications Support Element (JCSE) and other services using Memorandums of Agreement (MOAs).

Until recently the Marine Corps has organized, trained, and procured as a single service with the expectation of performing unilateral combat missions. Recent history has proven the need for multilateral operations and interoperability in such operations as the Mayaguez rescue effort, the Iranian Hostage rescue effort, Operation Urgent Fury, and Operation Just Cause. Congress enacted The 1986 Department of Defense (DOD) Reorganization Act, commonly

known as The Goldwater-Nichols Act, which emphasized unity of effort among the services and streamlined the chain-of-command within the DOD. Immature doctrine for joint operations, fiscal constraints, and force restructuring have complicated the Marine Corps' efforts to succeed in the joint arena.

Despite the complications, the Marine Corps must be able to operate in a joint environment. This paper identifies problems and recommends solutions in the areas of personnel support, communication equipment support, and the communication security (COMSEC) material system as they relate to C3 functions of the J-2 and J-6 within a JTF. The Marine Corps faces the most difficulties in terms of support with regards to the C3 information exchange requirements.

C3 INFORMATION EXCHANGE REQUIREMENTS

The COMJTF has information exchange requirements with higher, subordinate, supporting commanders, commanders of allied forces, and heads of government agencies (14: 3-1). The formation of a staff, J-1 through J-6, is the key to effective C3 coordination. Our focus is on the J-2 who is responsible for establishing the Joint Intelligence Center (JIC) and the J-6 who is responsible for setting up the Joint Communications Control Center (JCCC). Although it is the CINC's responsibility to form a joint staff, he usually delegates this responsibility to the COMJTF. The quickest

way for a Marine COMJTF to assemble a staff is to use the MARFOR G-6 staff as the J-6 staff, but it is not necessarily the best choice. The joint staff should contain a mix of the services. The COMJTF should choose the most qualified subject matter expert for each job.

Intelligence Information Exchange Requirements

One of the most critical responsibilities of the JTF Headquarters is to collect and disseminate strategic and tactical intelligence. The J-2 Directorate interfaces with national agencies such as the National Security Agency (NSA), Central Intelligence Agency (CIA), and Defense Intelligence Agency (DIA). The JIC needs to have access to the information from these national sources which arrives in theater over Ground Mobile Forces (GMF) satellite. The J-2, J-3, and the J-6 must coordinate the strategic intelligence requirements prior to the deployment and then adjust the requirements for intelligence operations within the JTF. The MAGTF utilizes organic surveillance and reconnaissance assets to gather tactical intelligence. This information is then passed to JTF through MARFOR for analysis. Standard intelligence operations for a JTF are depicted in Figure 1 below. The information collected at the JTF level is disseminated via the Wide Area Network/Local Area Network (WAN/LAN) all the way down to the battalion level. Intelligence information received from the battalion's

organic reconnaissance units is also sent to higher headquarters via the WAN/LAN.

JOINT C3 CONNECTIVITY FOR THE J-2

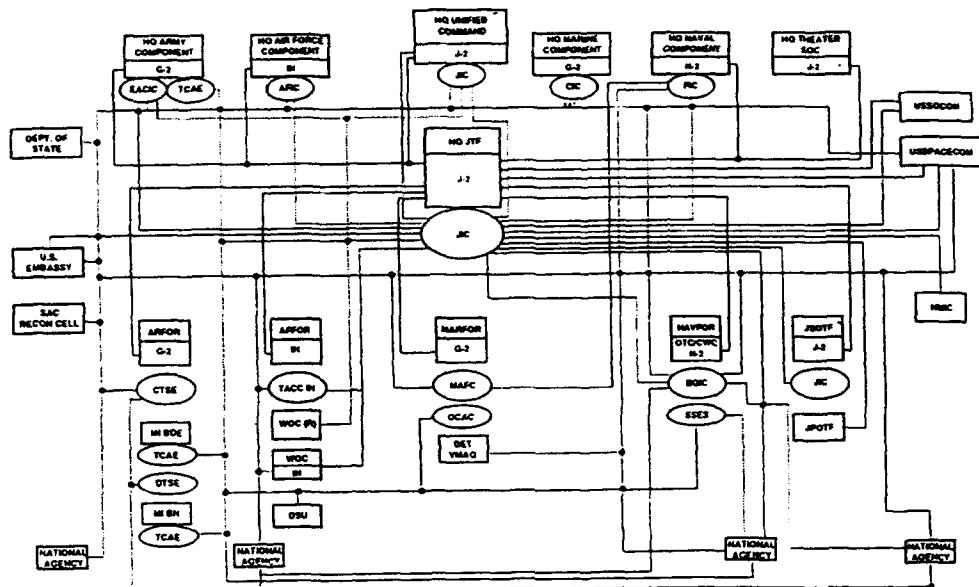


Figure 1 (14:3-12)

Communications Information Exchange Requirements

The J-6 is the designated C3 Systems Directorate of the JTF Headquarters (HQ) as is the G-6 for the MARFOR HQ. The J-6 staff manages JTF frequency allocation, deconflicts internal frequency requirements, and establishes the JCCC. The JCCC serves as the single control agency for management and operational direction of the joint C3 systems. The JCCC staff also includes an Automatic Message Processing Security Officer (AMPSO). The JCCC executes responsibilities through

extensive coordination with the component communications control centers. The JCCC should represent personnel from all services involved in the operation to ensure efficient coordination among the components. Standard C3 systems operations for a JTF are depicted in Figure 2 below.

JOINT C3 CONNECTIVITY FOR THE J-6

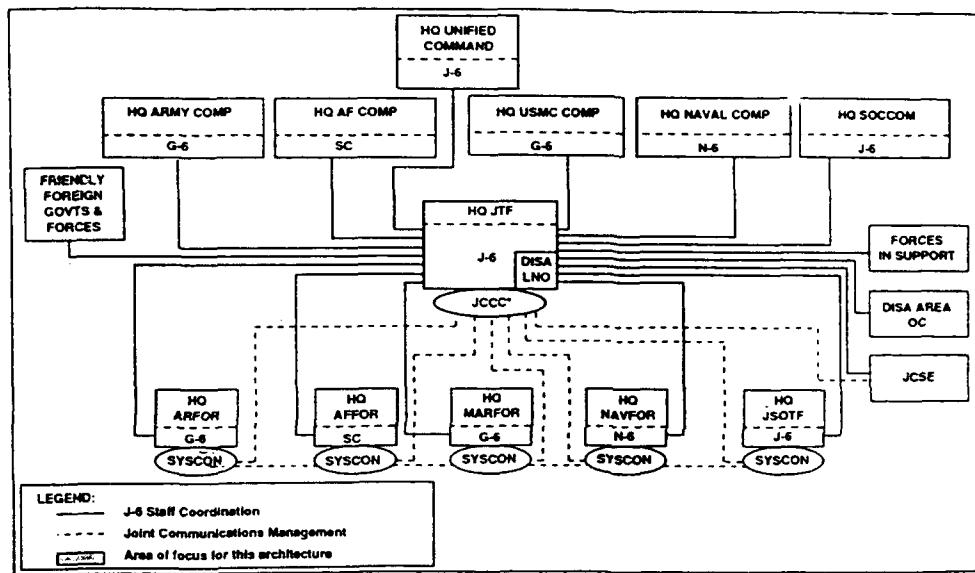


Figure 2 (14:3-35)

PERSONNEL REQUIREMENTS

When the MARFOR is deployed as a separate component, a new layer of C3 requirements is associated with that headquarters. Personnel will increase because of the additional staff responsibilities and communications systems

needed for the MARFOR component and the JTF. The CINC should provide some personnel augmentation to support the J-6 staff; however, the most common practice is for the COMJTF to take people from his own G-6 staff to fill out the J-6.

Augmenting the J-6 staff with personnel from the MARFOR G-6 staff presents a couple of problems. The first issue is that of training communicators to operate in a joint environment. The second issue is that of replacing the MARFOR G-6 personnel who have joined the J-6 staff.

First, Do We Have A Training Program To Ensure That The Personnel Are Qualified To Operate In A Joint Environment?

Reports from JTF Somalia and the Ocean Venture 92 exercise suggest that our G-6 staff lacks the training and background to plan and employ communications in a joint TRI-TAC network. MARFOR units found that they must operate as junior partners in the network because they have to rely on personnel from other services to engineer and troubleshoot the network. (1 and 10) The Marine Corps needs more than battalion communications officers at the MEF staff level. The Marine Corps does not have a training program that adequately prepares the communicators for MEF level or joint operations.

A solution to this problem will require the Marine Corps to spend money on training programs whether they are internal or external to the Marine Corps. To develop and

staff the schools necessary to train communicators for joint operations is a solution, albeit a costly one. However, the Army has several courses available: an eight-week K-7 course that trains staff non-commissioned officers (NCOs) and junior officers in TRI-TAC network planning and a twenty-week Information Systems Staff Officers Course which provides in-depth training in TRI-TAC systems planning and engineering (SPE). (16) Given fiscal and manpower constraints, the Marine Corps would benefit the most from coordinating with the Army for cross-instruction. It would also benefit the Army to have a Marine instructor on the Army staff to teach the TTC-42 planning and interface criteria.

All of the services are having difficulty training personnel to be joint qualified. This is not solely a Marine Corps problem. The services will benefit if the Joint Chiefs of Staff certifies existing courses for joint operations in the various battlefield operating systems (i.e., communications, intelligence, etc.). For example, the Army's TRI-TAC Systems Planning and Engineering Course or some equivalent could be modified to ensure that graduates are adequately qualified as joint network planners. If more courses were certified as joint courses, more personnel would have the background knowledge to perform successfully on a joint staff. The Marine Corps could also use this opportunity to train communicators for a

MARFOR staff billet.

Second, there must be a plan to replace the deployed MARFOR G-6 staff. Both MARFORFAC and MARFORLANT are independently developing solutions to this problem. MARFORLANT considers its current staff size of seven officers and eleven enlisted to be adequate for a deployed MARFOR G-6 staff. (1) MARFORPAC has developed a table of organization (T/O) requiring twenty-four officers and sixty-eight enlisted for its deployed MARFOR G-6 staff. (5) Operations Desert Storm, Tandem Thrust, and Green Hammer suggest that the larger staff developed by MARFORPAC would better handle the increased workload of a deployed MARFOR G-6 staff. (10)

Where Does The Expanded MARFOR G-6 Staff Necessary For Handling The Increased SPE Come From?

The most common solution to this problem is the battle roster process. After-action reports from JTF Somalia and exercise Tandem Thrust indicate that the battle roster process is unsuccessful. (10 and 17) One of the problems associated with the battle roster process is ensuring that the person identified for the battle roster slot is adequately qualified. The battle roster position must be specified by T/O and line number and the individual slotted in that billet should attend the appropriate training before checking in to the supporting organization. Another problem

with this process is the need for these people to train periodically with the MARFOR staff before deployment to enhance operations. Deployment time is too late to learn a key player's abilities or to learn the system as the new person on the staff. Support for the battle roster process is weak because most officers and senior NCOs, considered vital to an already lean staff, will not easily be given up by the parent command to support a battle roster billet in an exercise.

MARFORLANT plans to deploy its regular staff and backfill with either battle roster personnel or reservists. This eliminates the problems of training associated with using a battle roster; however, we feel that this approach is unrealistic when using the size staff proposed. (1) MARFORPAC also does not intend to deploy battle roster personnel. It prefers to use Individual Ready Reserves (IRRs) and Individual Mobilization Augmentees (IMAs) to fill out the deployed MARFOR staff while using the battle roster personnel to backfill its garrison billets. (5) Because there is a lack of trust in the battle roster process, the use of a battle roster to augment the MARFOR staff is ineffective. If the battle roster process is emphasized and enforced, it would be a viable and effective solution to the manning problems associated with deploying a MARFOR. The use of IRR and IMA reservists to augment the deployed MARFOR staff and to backfill garrison billets presents a better

solution if training is maintained.

MARFOR HQ requires more communication personnel to support the additional layer of communication requirements. Current Marine Corps T/Os have no specific organization to handle these new requirements. This shortfall was recognized early by the Warfighting Center at Quantico. The Center convened the Force Structure Planning Group (FSPG) in 1991 to formulate a plan for meeting these new requirements. The FSPG plan would increase each communication battalion by approximately 580 personnel. Some of these personnel would staff a third communication company within the battalion with a mission of supporting the deployed MARFOR HQ. The remainder would support a more robust communication capability for the communication battalion overall. HQMC has approved the FSPG plan; however, it will be several years before the personnel and the equipment they support are in place. Additional cuts in Marine Corps strength could adversely affect this plan. (2 and 6) The following figure depicts the proposed personnel requirements for a deployed MARFOR HQ.

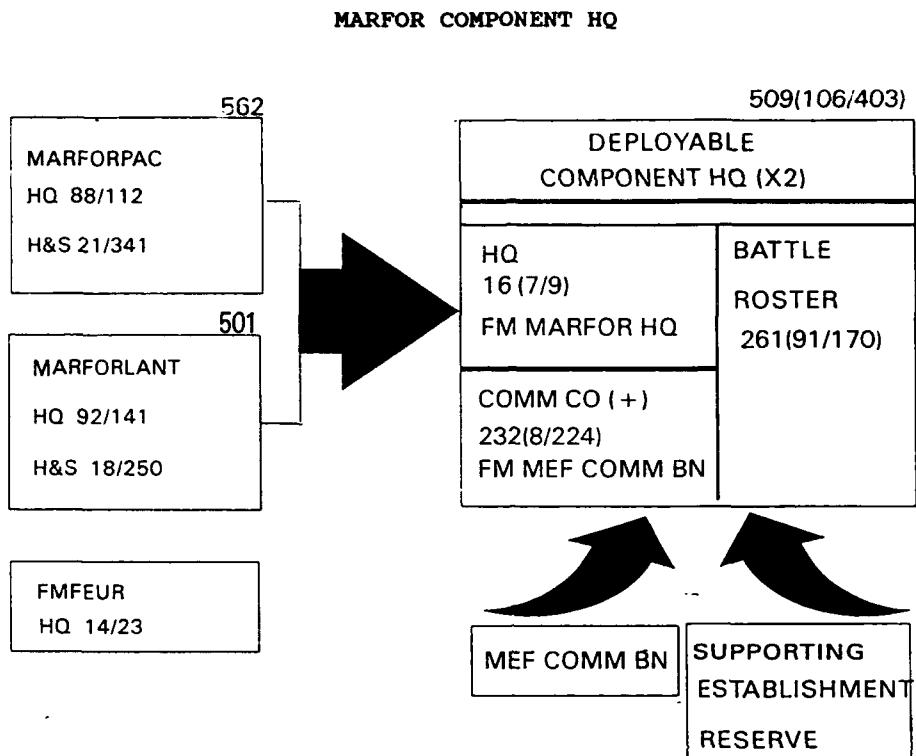


Figure 3

COMMUNICATION REQUIREMENTS - JTF

There are two main areas of concern regarding communications: JTF communications and MARFOR communications. The traditional employment concept for the Marine Corps was at the MAGTF level and communication requirements were mainly internal. In the new joint environment, MAGTF communication needs are still primarily

internal, but there is now an additional requirement for MARFOR and JTF connectivity. These new communication requirements are shown in figure 4.

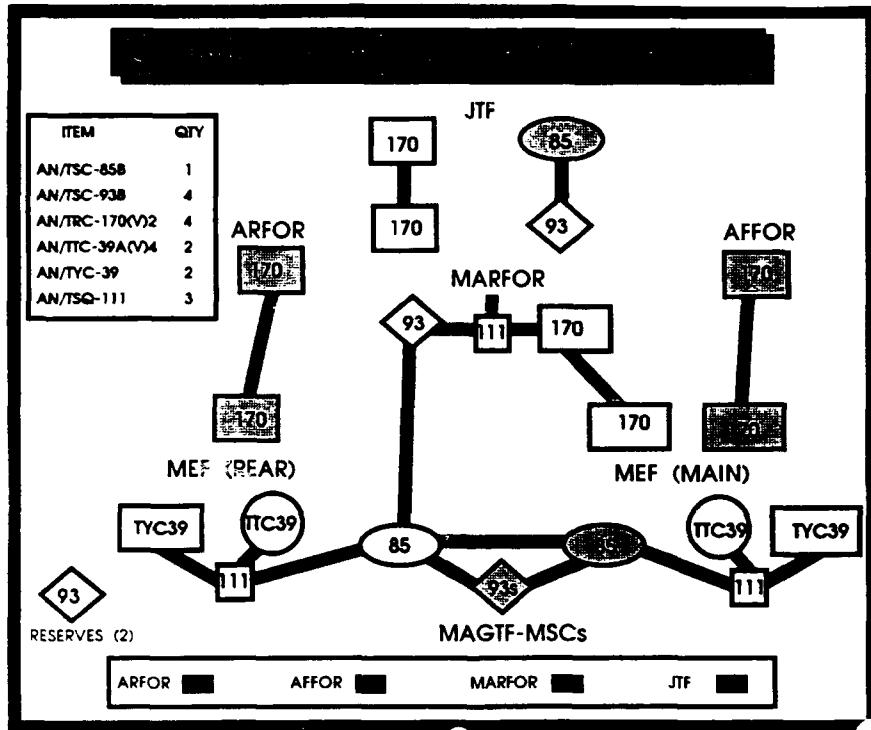


Figure 4

Operation Desert Storm validated the communications doctrine for future joint operations. The JTF's communication requirements are supported by JCS controlled assets; therefore, they are not considered to be a major problem as long as the proper procedures are followed for employing such assets. The view of Headquarters, Marine Corps (HQMC) and the JCS J-6J is that COMJTF communications

are a Commander-In-Chief (CINC)/JCS concern. (17) When a JTF is formed, either for an exercise or a real world contingency, it is the responsibility of the CINC to request the appropriate JCSE support in accordance with Memorandum of Policy Number 3, CJCS Controlled Tactical Communications Assets, dated 31 January 1990. It is the CINC's responsibility to provide CINC controlled communication assets to take over for JCSE assets should they be redeployed. If the CINC does not have the needed assets, he must request replacements from other JCS controlled communication assets via the JCS J-6.

There are several problems associated with JCSE communication support. Commanders rarely employ JCSE for exercises due to fiscal constraints. Most commanders would rather use their limited transportation dollars to get additional combat units into the exercise. For example, during the Cobra Gold 1990 exercise, the G-6 of III MEF determined that for the cost of transporting the appropriate JCSE assets from Florida to Thailand, the JTF could get twice as much communication equipment from the communications battalion in Okinawa, Japan. (17)

What happens to the COMJTF when JCSE does not perform as advertised? JTF Somalia is an example of yet another problem with relying upon JCS controlled assets. In Somalia, JCSE assets could not get in-country quickly because of air flow problems. The COMJTF simply relied upon

the communications battalion to provide the necessary communications links. This non-doctrinal employment of the communications battalion's assets is typical in real world operations. The problem increased when other JCS controlled assets arrived to replace JCSE assets. Replacement of the JTF links was not a smooth transition because these new assets were to replace JCSE assets, not provide doctrinal JTF links which 9th Communications Battalion had temporarily provided. (10)

These problems will be resolved if the CINC ensures that proper procedures are followed for requesting JCS controlled communication assets. Commanders must be familiar with these procedures to ensure effective use of JCS controlled assets in real world contingencies. The only way to get the kinks out of the system is to test it repeatedly in peacetime. Train as you would fight.

COMMUNICATION REQUIREMENTS - MARFOR

An evaluation of communication requirements shows that the biggest communication problem is at the component level. The typical employment of communications for the Marine Corps was internally focused. Marine Expeditionary Force (MEF) level operations were rarely conducted before Operation Desert Storm. Marine Corps communications focused on the division level as the largest employed unit. The development of the TTC-42 switching system is a good example

of this mind set. In 1973, the Marine Corps developed the TTC-42 which is a TRI-TAC compatible circuit switch for use at division and below. At this time, the employment of a MEF was not envisioned, and the limited switching capability of the TTC-42 was sufficient; therefore, the Marine Corps did not buy into the more expensive TTC-39 program. (2) This program would have given the Marine Corps a larger circuit switching capability. The resultant shortcoming was highlighted during Operation Desert Storm where we had to operate with MEF size units in a large joint operation. This operation also identified shortcomings in message switching systems, digital technical control systems, GMF satellite systems, and terrestrial multichannel systems.

How will the Marine Corps meet JTF and MARFOR requirements? Meeting equipment requirements is more complicated than just buying the needed assets. The communication systems required (TTC-39s, TSQ-111s, and TYC-39s) are no longer available for purchase. Even if they were available, the time involved in training operators and technicians would prevent the systems from being operational for at least a year. If we borrowed the equipment from another service, we would still have to train operators and technicians. An additional complication would be the necessity to acquire spare parts that are not currently in the Marine Corps supply system. (2) The Marine Corps must meet these communication requirements in two phases. The

first phase is to develop an immediate temporary solution.

The temporary solution developed by HQMC C4I is to develop MOAs with the Army and Air Force/Air National Guard. These MOAs request those services to provide specified communications capabilities which include equipment and personnel in support of Marine Corps operations. The use of MOAs presents the same problems as using JCS controlled assets. The Marine Corps has to pay the costs of employing these systems in an exercise for training. The Air Force MOAs involve Air National Guard units, and unless we exercise with these units, there will be no true way to evaluate their readiness. Training together is a necessity for successful component missions in real world contingencies. There is a genuine concern that in the event of a full-scale war, all bets are off in regards to the MOAs. (6) If the Air Force or Army does not live up to its MOAs, the Marine Corps will have to rely upon the ability of the CINC to provide for unforeseen equipment requirements and the generosity of other components in the JTF.

ACQUISITION OF INTEROPERABLE COMMUNICATION EQUIPMENT

In phase two, the Marine Corps must procure communication equipment that is interoperable in order to make us a full-fledged player in the joint world. This phase must be completed before the MOAs expire. The following items of equipment or their equivalent are needed:

1) TTC-39 circuit switch, 2) TYC-39 message switch, 3) TRC-170 high capacity digital terrestrial multichannel, 4) GMF equipment, and 5) a digital technical control. The Marine Corps' current acquisition plan is as follows:

1) For a high capacity circuit switch the Marine Corps is looking at a TTC-39 follow-on switch called the New Generation Switch. Marine Corps Systems Command (MARCORSYSCOM) would like to fund six of these switches for FY95 which means that the switches should arrive in the Fleet in the spring of 1997. (3)

2) The message switch plan is not as promising. There are no plans to replace the MSC-63s message terminal. HQMC decided to try to modify the current MSC-63 to perform as a message switch instead of a message terminal. Modifications will be made in three areas. First, the software must be modified to mimic the TYC-39 orbital algorithm. Second, the number of circuits must be increased from four to eight. Third, the MSC-63 must be certified to handle R and Y traffic simultaneously. The expected completion date for the first two modifications is sometime in 1996. Once these modifications have been made, the equipment must be certified for operational use. This certification process is not defined as of yet which could extend the completion date even further. (3) The Marine Corps will not have an adequate message processing capability if these modifications are not successfully completed before the MOAs

expire in 1998.

3) There are presently 134 TRC-170 V3s on order as replacement for the GRC-201 terrestrial multichannel system. If funding does not change, these systems should arrive in the Fleet in FY95. (2)

4) HQMC C4I has identified the need for two additional TSC-85 and for up to six TSC-93 GMF suites. There is no plan for procuring GMF equipment, but there is a possibility that force restructuring will free up GMF terminals around FY97. The Marine Corps needs to identify a definite solution to the GMF problem before the MOAs expire. (2 and 11)

5) The Marine Corps has decided that the Air Force TSQ-111 digital technical control facility, which requires an extensive training process, is too costly to procure. The Marine Corps has decided that procuring a portable digital technical control with limited capability or upgrading the TSQ-84 analog technical control is more feasible. There is no projected cost or fielding date for either of these projects. (3) A decision on procuring a digital technical control capability must be made now if the Marine Corps is to fully support a component headquarters and COMJTF by 1998 when the MOAs expire.

THE COMSEC MATERIAL SYSTEM (CMS)

We are all familiar with the communication problems encountered in the invasion of Grenada. Many of these problems were caused by a lack of a common communication security software package. As a result, the Intertheater COMSEC Package (ICP) was developed. This COMSEC software package is to be used by all services within a theater of operations during the initial phase of a joint operation. In order to streamline efficiency during joint operations, a common CMS management procedure is needed to manage the common software package. A common CMS management procedure was used during Operation Desert Storm when the Army established a Theater COMSEC Management Office (TCMO) for the CINC. The TCMO was responsive logically and administratively to the cryptographic users; therefore, it prevented many of the problems experienced in Grenada from reoccurring. The Marine Corps joined the Army in manning the TCMO to benefit from this streamlined, more responsive CMS management procedure.

As the COMJTF, the Marine Corps must be capable of effectively managing a myriad of COMSEC software to include the ICP. Establishing a Marine or MEF COMSEC Management Office (MCMO) like the TCMO would facilitate the Marine Corps' ability to effectively handle the increased COMSEC software that exists when follow-on forces arrive in theater. A MCMO would provide CMS management procedures

that are common to the other services. (20)

Managing The ICP

The key to managing the ICP is proper planning prior to the operation. Unfortunately, proper planning wasn't done for Operation Desert Storm. Some Marine units failed to identify the proper amount of ICP material necessary for their use. (7 and 13) Marine aircraft were targeted by Navy, Army, and other Marine units because these aircraft could not process secure communications. These incidents were due to the lack of proper keying material (keymat). (9) Once keymat shortfalls were identified, NSA had to stop all production of future keymat in order to produce thousands of copies of effective and reserve-on-board (ROB) keymat for the units lacking the proper keymat in Southwest Asia. The Defense Courier Service (DCS) was unable to transport and deliver keymat expeditiously to Southwest Asia. Once in country, DCS was unable to locate individual units requiring the keymat. This resulted in undue logistical strains on CMS custodians and cryptographic users to locally reproduce and distribute keymat. (20)

MEF COMSEC Management Office (MCMO)

Establishing a MCMO should be standard policy for the entire Marine Corps. The MCMO should consist of a dedicated staff at the MEF or smaller MAGTFs that concentrates on CMS

matters, particularly the planning for and handling of ICP material. An advantage of the MCMO concept is that it allows the using unit to receive keymat shipments at one central point. The peacetime distribution point will be the same organization the user will use during war. Personal contacts established in garrison will continue in the deployed status. (9)

Centralized Handling Point For ICP Material

The MCMO will provide a central point for the initial storage of ICP material. The use of a centralized point will reduce the number of personnel handling the software which reduces the possibilities for compromises. Fewer compromises should occur because of smaller accounts at the smaller unit level. As an example, an infantry battalion holds multiple keymat of approximately 199 lines, which would fill approximately four two-drawer safes. If a MCMO handled ICP material, the infantry battalion would only have approximately thirty-four lines of keymat to store which would fill approximately one two-drawer safe, one fourth of the average space previously required. Lighter software loads allow the COMSEC custodians to focus on training the unit's CMS users instead of administrative paperwork. (9)

Reduced Burden On Issuing Offices And Couriers

Just as the users within a MEF will have only one

distributor of CMS software from which to coordinate shipments, the DCS, Director COMSEC Material System (DCMS), and the COMSEC Material Issuing Office (CMIO) will also have only one place to forward shipments. Without a MCMO, DCS, DCMS, and CMIO will have to deal with sixty-five units within a MEF vice the one MCMO. Coordination between the issuing offices--DCMS and CMIO--and the receiving unit MCMO, will be enhanced as the personnel in the two offices become familiar with the each other. This type of coordination would not occur if DCMS and CMIO had to deal with the sixty-five units previously mentioned. (9 and 20)

MCMO's Redistribution Capability

The MCMO will be capable of covering the mistakes of its user units. For example, if a unit does not gauge its COMSEC material needs correctly for an operation, the MCMO will redistribute the necessary COMSEC material to that unit. The MCMO will be able to redistribute COMSEC material in garrison and while deployed because it will be familiar with all the subordinate MEF units' holdings and their particular level of participation in the operation.

(20)

MCMO In The Joint Environment

The single biggest reason to establish MCMOs is its ability to stand up as a TCMO or the equivalent Joint COMSEC

Management Office (JCMO). The JCMO concept is not policy for all JTFs yet, but it has been used recently in Operations Desert Storm and Restore Hope. In both operations, the JCMO concept has proven to be very worthwhile. (9 and 20) The MCMO is organized in the same fashion as the JCMO model which was developed from the Army's TCMO model. An advantage of this parallel organization is that the MCMO can establish a central point for CMS matters that mirrors the follow-on JTF and Army COMSEC management offices. (20)

The MCMO is working well in I MEF as evidenced by the success of this concept in Operation Restore Hope in Somalia. However, the remaining MEFs haven't begun employing the concept. The Marine Corps has directed the employment of the MCMO concept throughout the Corps, but no time limit for its employment has been set. (8) The Marine Corps needs to have the MCMO functioning in all command elements that may go ashore and have follow-on forces join them in theater. The likelihood of having follow-on forces is very high with the current military spirit of jointness.

DATA NETWORKS

The integration of other services' data systems is another area of concern for the Marine Corps when a MEF serves as the base for follow-on joint forces. There are two options for providing the joint data network: 1) have

the JCSE expand its role and provide the automation support or 2) have the CINC provide Deployable Automated Data Terminal Response Teams (DARTs). These teams operate a deployed World Wide Military Command and Control System (WWMCCS) site and a number of ruggedized laptops for key subordinate commands and functional elements. Option two would be more advantageous because the CINC would not have to worry about replacing JCSE assets and his staff would already be familiar with the equipment, software, and personnel associated with the DARTs. USCINCLANT has four DARTs ready for deployment. (14: 6-5)

World Wide Military Command And Control System (WWMCCS)

WWMCCS is a computer network that was developed as a result of the Cuban missile crisis to allow the National Command Authority the ability to command and control U.S. forces. However, during Operation Desert Storm, WWMCCS was used as more than just a data network for the national command. WWMCCS became the primary method in many instances for disseminating theater level information such as the air tasking order (ATO). (4)

Local And Wide Area Networks (LAN/WAN)

The primary method for passing tactical information such as the ATO should not be the WWMCCS network. During Operation Desert Storm, the ATO was passed over

the WWMCCS network to expedite dissemination because existing data networks were overloaded and untimely. This type of information should be passed over LANs and WANs. The JCS J-6 has termed joint data networks as Integrated Tactical Strategic Data Networks (ITSDNs). The Marine Corps is compatible with the other services because it has begun procuring an Internet Protocol (IP) router for its data network. The IP router is capable of interfacing with the other services' data networks to establish an ITSDN. The Air Force's inability to communicate with the joint standard interface software, X.25, creates a problem within the ITSDN. The Air Force is working to alleviate this problem. (12) Once this interface problem is fixed, the ATO can then be passed over an ITSDN. The ability to operate ITSDNs will minimize the problems of overloaded data networks. ..

Security For The Data Networks

Another problem in establishing an operational ITSDN is security. Security on a data network must ensure that the classified information goes only to the terminals that are authorized to receive it. There are two options the Marine Corps can use to provide the proper security for the classified data.

The first option involves systems hardware and software changes that ensure only the proper level of classified

material goes to the proper user. According to NSA, many scientists believe that the technology necessary to develop these changes is approximately ten years away. The second option is to establish separate networks for the different levels of classified information. (12) The figure below depicts the exchange of different levels of classified information.

NETWORKING VARIOUS LEVELS OF CLASSIFIED INFORMATION

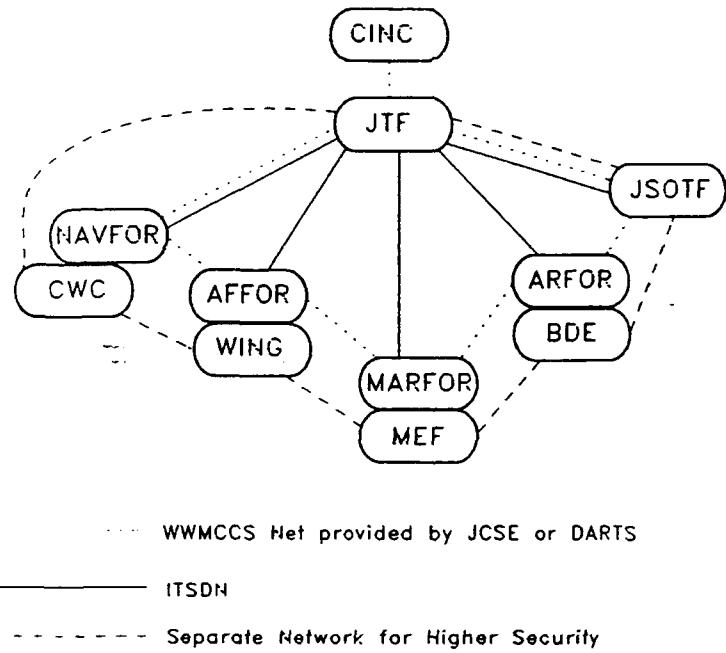


Figure 5

CONCLUSION

The Marine Corps needs augmentation in order to support the MARFOR component and the COMJTF. We have presented a method that allows the Marine Corps to support the MARFOR component with MOA augmentation and battle roster staffing. With the emphasis on joint operations, the Marine Corps must adjust to support component and discard the parochial view that Marines can do it all.

The JTF staff should consist of the personnel best qualified to perform particular staff functions. The Marine Corps' ability to train personnel for joint operations limits the number of qualified personnel available; therefore, based on qualifications, the JTF staff should be a mix of the various services' personnel.

Although there is not full agreement with regard to battle rosters, they are a viable solution to the problem of manning a component headquarters. We must put more emphasis on exercising the battle roster concept during peacetime if we expect to use it for real world contingencies. If we are not going to exercise the battle roster concept in peacetime, then we should decide upon another solution to the manning problem and train as we intend to fight.

The MOAs that are now in place are, at best, a stop-gap measure until the Marine Corps can attain the required communications equipment and train its officers and operators to function in a joint environment. We must

implement and use the MOAs, battle rosters, and JCSE in peacetime if we are going to be able to accomplish our mission as COMJTF, MARFOR, and MAGTF in a real world operation on the scale of Operation Desert Storm.

We can use the valuable lessons learned from Operation Desert Storm in regards to managing the COMSEC Material System. We recommend that all MEFs need to employ the MCMO concept as standard policy. In conjunction with procuring IP routers, the Marine Corps must continue to conduct research and development on the multilevel security program for the data networks.

In the true spirit of jointness, the Marine Corps must rely upon the other services for augmentation until we can obtain the necessary equipment and personnel required for component support in large scale operations. In the future, the Marine Corps will be able to support COMJTF and MARFOR component without relying heavily upon external support.

BIBLIOGRAPHY

1. Ahrens, P.R., Lieutenant Colonel, USMC of COMMARFORLANT. LAN interview. 23 Dec. 1992.
2. Black, D.M., Colonel, USMC of HQMC C4I. Personal interview.
3. Blaise, Major, USMC of MARCORSYSCOM. Telephone interview. 29 Dec. 1992.
4. Blankenship, Scott, Captain, USMC of MCCDC Command and Control Systems Course. Personal interview. 26 Jan. 1993.
5. Bowden, T.C., Major, USMC of JTF Somalia. LAN interview.
6. Bradley, G.R., Lieutenant Colonel, USMC of MCCDC Warfighting Center. Personal interview. 23 Jan. 1993.
7. "CMS." Marine Corps Lessons Learned System Number 91535-97213. Quantico: Ninth Communications Battalion.
8. Establishment of Marine Corps MEF COMSEC Management Offices. Message 041900Z Jan 93. Washington, D.C.: Commandant of the Marine Corps, 1993.
9. Harlan, David, Captain, and Ordonio, David, Master Gunnery Sergeant, USMC of I MEF. Briefing: "I MEF COMSEC Management Office (MCMO)."
10. Hill, R.G., Colonel, USMC of JTF Somalia. LAN interview. 24 Jan. 1993.
11. Hines, Robert, MARCORSYSCOM. Telephone interview. 29 Dec. 1992.
12. Integrated Tactical Strategic Data Network (ITSDN) Update. Message 221944Z Jan 93. Washington, D.C.: Joint Staff, J6T, 22 Jan. 1993.
13. "Inter-theater Communications Security Packages (ICP)." Marine Corps Lessons Learned Number 02141-57815. Quantico: First Marine Division.
14. Joint Interoperability and Engineering Organization. C3 Architecture for JTF Headquarters. Washington, D.C.: DIA, 1992.
15. Learn, T., Major, USMC of MCCDC Command and Control Systems Course. "Operation Tandem Thrust 92 After Action Comments."

16. Michaels, Captain, USA of US Army Signal Center. Telephone interview. 7 Jan. 1993.
17. Moberg, Harley, Colonel, USA of Joint Staff, J6J, et al. Personal interview. 13 Jan 1993.
18. Nagy, Lieutenant Colonel, USMC of MCCDC Warfighting Center. Personal interview 23 Jan 1993.
19. "The Need for AN/TYC-39 per MEF." Marine Corps Lessons Learned number 41484-39345 (00003). Quantico: CWO-2 Hurd.
20. Nicosia, Deanna L., COMSEC Manager of HQMC. Personal interview. 26 Jan. 1993.
21. Reavis, Lieutenant Colonel, USMC of MARFORLANT G-5. Personal interview. 24 Feb. 1993.
22. Simmons, Major, and Goddard, Captain, USMC of MARFORPAC "MEFEX 92-2 After Action Comments." 13 Aug. 1992.